

Syllabus Reference

Course title	Introduction to Integrative Bioscience		
Term	前期 1st Half		
Credit(s)	1		
The main day		The main period	
School/Program	School of Life Science		
Department/Program	Common Subjects of Life Science		
Category	Common		
Lecturers	Tominaga, Sokabe, Saito, Kashio, Nemoto, Enoki		

Instructor

Full name

* TOMINAGA MAKOTO

Outline	First, the educational program for Integrative Bioscience is introduced. Then, driving forces for rapid development of biology are reviewed from a historical point of view, and the features of contemporary life science are overviewed. Based on these reviews what the Integrative bioscience is and why it is necessary are discussed. Particularly, it is emphasized that a large volume of information on sequences and structures of genome, RNA, proteins, sugars, metabolites etc. and that of spacio-temporal expression of these molecules are integrated to understand their meaning at a cell, tissue, organ or organism level and to unravel the mechanisms of high order biological functions, diseases, environmental responses etc.
Goal	The educational program for Integrative bioscience will be introduced, overviewing contemporary bioscience and discussing the features and necessity of the Integrative bioscience.
Grading system	01:Four-grade evaluation (A, B, C, D)
Grading policy	The grade is determined by reports/home works and attendance at the lectures. 60 points are necessary to get the credit.
Lecture Plan	Lecturers: Makoto Tominaga, Takaaki Sokabe, Sigeru Saito, Makiko Kashio, Tomomi Nemoto, Ryosuke Enoki Schedule: June 3, 10, 17, 24, July 1, 8, 15, 29 13:30 -15:10 on Thursdays Contents: 1. Introduction of the educational program for Integrative bioscience (June 3, Tominaga) 2. Imaging by using fluorescence probes and proteins (June 10, Sokabe) 3. Principles of mass spectrometry/next generation sequencing and the applications in life science (June 17, Saito) 4. Accumulation of massive information (multi-omics) and its application in life science (June 24, Kashio) 5. Characteristics of contemporary life science (multi-omics2) (July 1, Sokabe) 6. Integrative approaches for intracellular signaling (July 8, Nemoto) 7. What is Integrative bioscience (July 15, Tominaga) 8. Perspective of Integrative Bioscience (July 29, Enoki)
Location	Yamate campus, building 3, 9F Seminar room B / Zoom online
Language	English
Textbooks and references	No specific textbook is used. References will be introduced in the lecture when necessary.